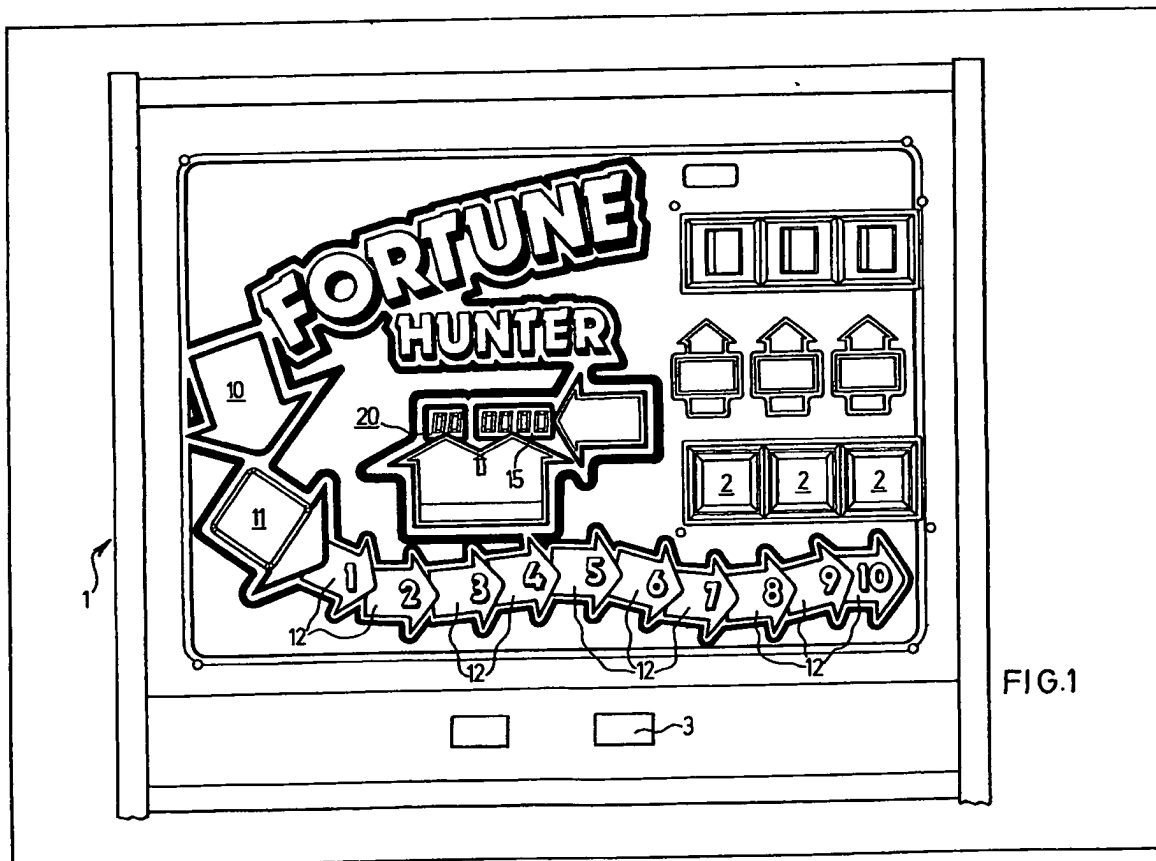


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(71) Applicants
Summit Coin Limited,
Western Avenue,
Bridgend Industrial
Estate,
Bridgend,
Mid Glamorgan.
(72) Inventors
Donald J. Last
(74) Agents
Marks & Clerk,
57-60 Lincoln's Inn Fields,
London, WC2A 3LS.

(54) Coin-freed gaming machine

(57) A fruit machine incorporates a "special feature" in which, after a normal random spin of the reels, the machine makes available to the player a variable number of adjustment stops to step the reels round to a winning combination. In addition to determining the total number of such stops or steps available to the player in a particular game, the machine itself automatically computes the most advantageous way for the player in distributing the stop movements between the various reels and itself automatically moves the reels in the most advantageous way (within the limitation of the total number of stops available in a particular game).



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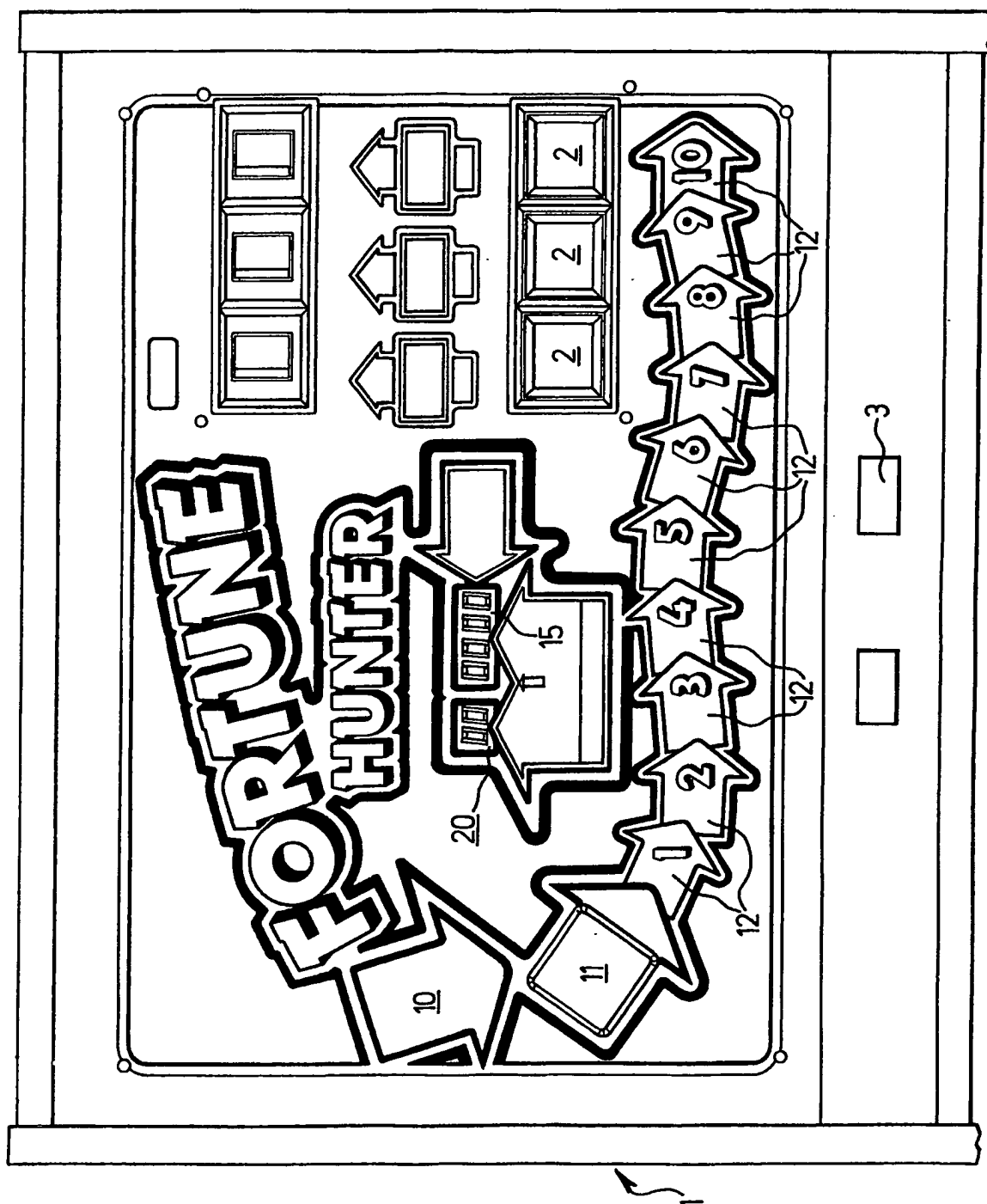


FIG. 1

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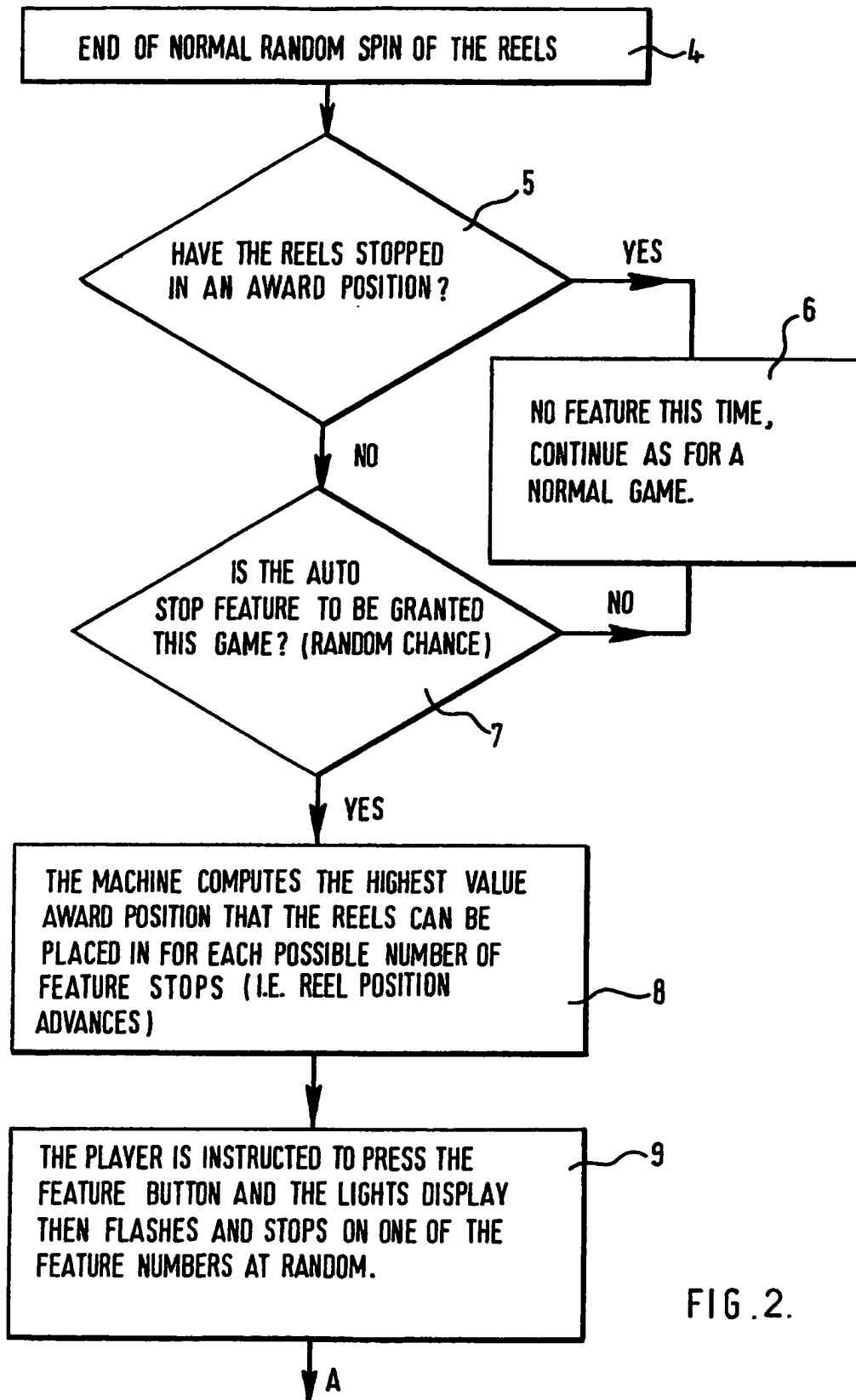


FIG. 2.

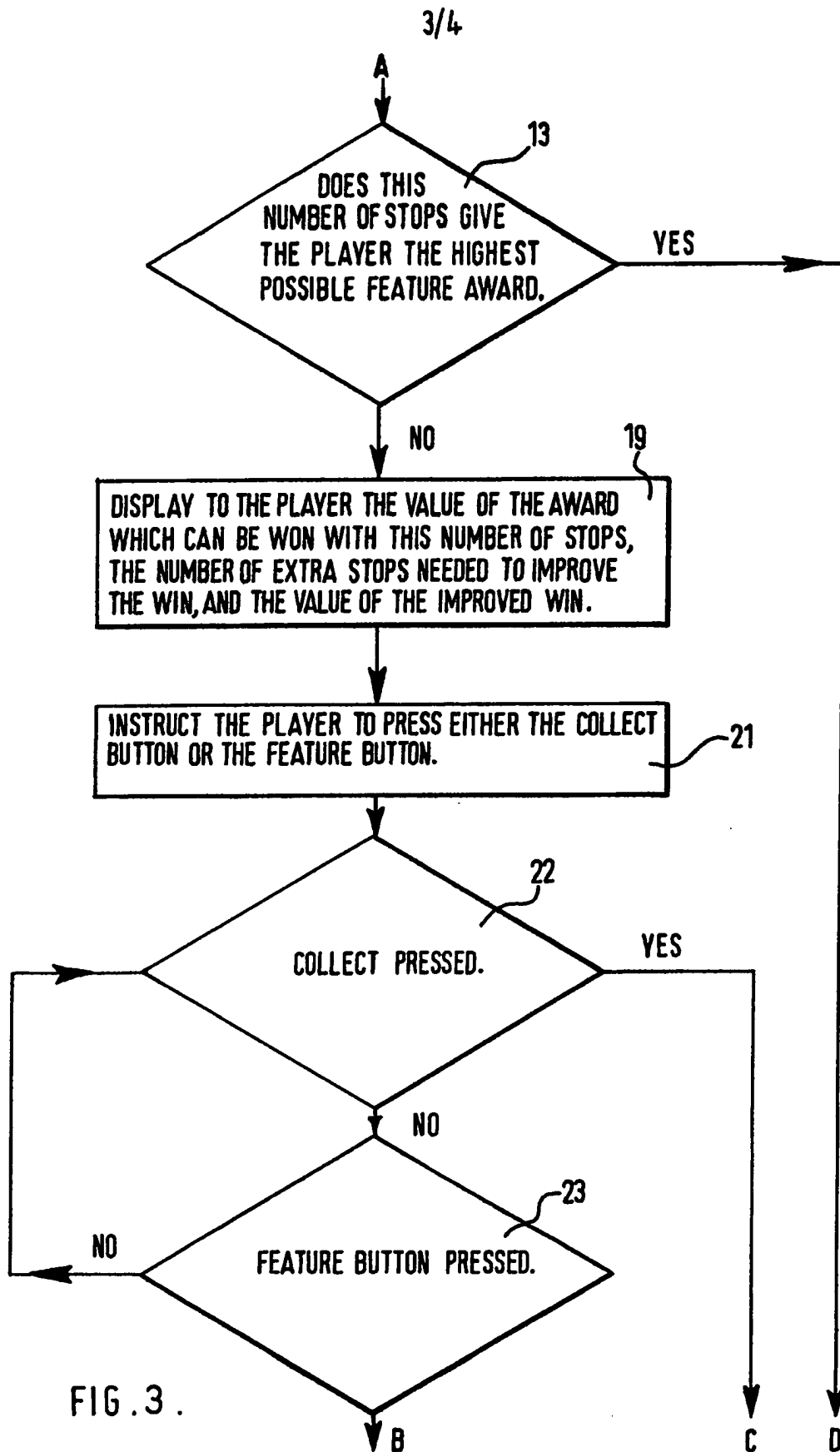


FIG. 3.

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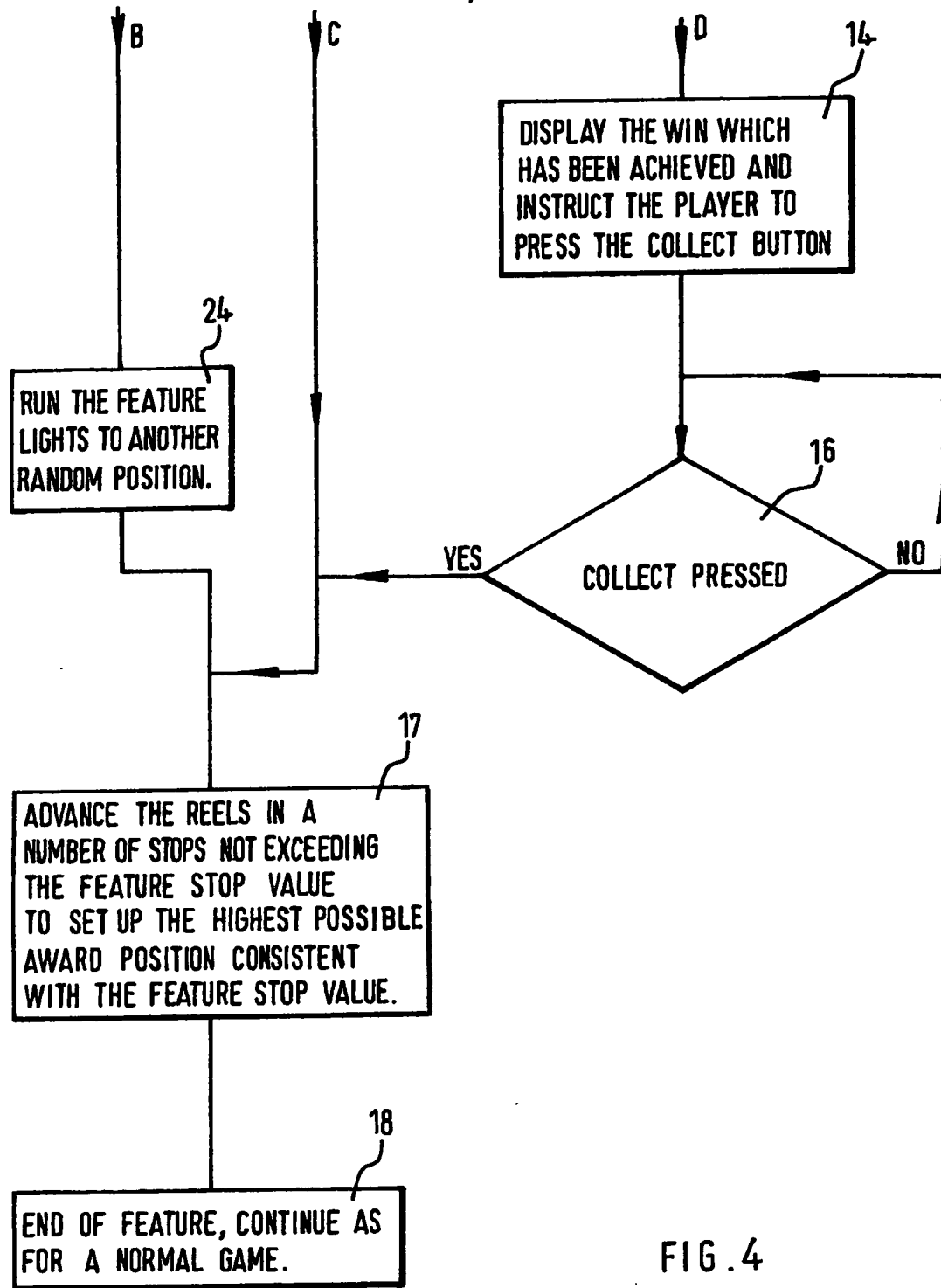


FIG.4

SPECIFICATION

Coin-freed gaming machine

5 This invention relates to a coin-freed gaming machine comprising means (such for example as rotatable reels or drums) defining a plurality of separate series of symbols (such for example as pictures of various fruits) and means operative to
 10 select any symbol from each series and to display the combination of selected symbols from said plurality of series (for example by rotating said reels or drums to positions in which the selected symbols are visible through a window).

15 The object of the invention is to enable such a machine to present a player with a chance of improving the result of a game.

As seen from one aspect of the invention there is provided a coin-freed gaming machine comprising
 20 means defining a plurality of separate series of symbols, means operative to select any symbol from each series and to display the combination of selected symbols from said plurality of series, means defining certain predetermined combinations
 25 of selected symbols as "winning" combinations of predetermined respective prize value or values, means for determining whether or not the displayed combination of selected symbols is one of the winning combinations, means for operating the
 30 symbol-selecting means to make at least one selection at random, and means for adjusting the symbol-selecting means, after a random selection, so as to change the selected and displayed symbol of at least one said series, said adjusting means being adapted
 35 to proceed step-by-step in a predetermined sequence from symbol to symbol in the or each series of which the selected and displayed symbol is being changed, and means for defining the number of steps available in a game to said adjusting means,
 40 characterised by means for automatically computing whether the available number of adjustment steps in a game could produce a winning combination and, if so, for automatically causing the selection and display of said winning combination.

45 Preferably the machine is characterised by means to select at random the number of steps available in a game to said adjusting means.

Preferably the machine is characterised by internally controlled means to offer a chance of changing
 50 the number of steps available in a game to said adjusting means.

Preferably the machine is characterised by means defining a maximum number of steps ever available in any game to said adjusting means and means for
 55 selecting the number of steps actually available in a game to said adjusting means.

Preferably the machine is characterised by means for computing whether a greater number of steps (up to a maximum ever available) than those actually
 60 available could produce a winning combination of greater value than the value of a winning combination actually obtained, and means to present a player with the choice of either collecting the value of the winning combination actually obtained or gambling
 65 on increasing the number of steps available so as to

obtain said winning combination of greater value.

Preferably the machine is characterised by means for indicating different number of available adjustment steps, rapidly changing from number to number, and means to stop the step number indicating means on one of the numbers at random.

The invention will be described by way of example with reference to the accompanying drawings, wherein:-

75 *Figure 1* illustrates the display panel of a machine embodying the invention; and

Figures 2, 3 and 4 in combination (with *Figure 2* above *Figure 3* and with *Figure 4* below *Figure 3*) illustrate the logic diagram of the machine embodying the invention illustrated in *Figure 1*.

80 Referring to the drawings, the illustrated machine is a coin-freed gaming machine 1 which, like conventional "fruit machines", comprises a number of reels, for example, three reels, not shown, mounted
 85 coaxially, each reel having a similar number, for example twenty or twenty-two, of symbols at equal intervals around its rim, the symbols preferably being pictures of different fruit such as cherries, plums, oranges etc. so that one symbol at a time of
 90 each reel is visible through a respective one of three windows 2. As with conventional fruit machines, the gaming machine 1 comprises means (not shown) for rotating the three reels and for stopping each reel at random so that a row of three symbols appears at
 95 the three windows 2.

As with conventional fruit machines, the machine 1 comprises means (not shown) defining certain predetermined combinations of symbols displayed at windows 2 as "winning" combinations of predetermined respective prize value or values and means
 100 for determining whether or not the displayed combination of symbols is one of the winning combinations. The machine 1 is provided with a "collect" button 3 (*Figure 1*) which lights up, that is to say, becomes illuminated, if the displayed combination is a winning combination, whereupon the player can collect his award or prize by depressing the "collect" button 3.

In accordance with the invention, the machine 1 is
 110 programmed, by means not shown, to introduce a special "feature" into the occasional game. That is to say, this special feature is not provided in every game played on the machine, but is only provided from time to time. According to this special feature,
 115 after the reels have stopped at the end of a normal random spin, one or more of the reels may be moved a number of stops (up to a total of ten stops per game) for the purpose of obtaining a winning combination.

120 Referring to *Figures 2, 3 and 4*, starting with *Figure 2*, the machine 1 includes logic circuitry which operates as follows:-

At the end of the normal random spin of the reels (box 4) the circuitry determines whether the reels
 125 have stopped in a winning combination, that is to say, an award position (box 5). If the answer is "yes", the logic circuitry prevents the special feature from happening (box 6) making the machine continue as for a normal game, illuminating the "collect" button
 130 3 to direct the player to operate button 3 so as to

collect his award. If the reels have not stopped in an award position (box 5) the logic circuitry then determines (at random or pseudo-random) whether or not the special "auto stop" feature is to be granted (box 7). If the answer is "no" the logic circuitry causes the machine to continue as for a normal game (box 6) with no award being made. If the answer is "yes" (that is to say, the special feature is to be granted) the machine proceeds to compute (box 8) the highest value award position that the reels can be placed in for each possible number of feature stops (that is, reel position advances). As mentioned earlier, the maximum number of advances is ten. For example, if the machine in a particular game allows only one step or stop or advance, it may be the first reel or the second reel or the third reel which is advanced, and the machine is able to select the most advantageous choice for the player.

If two stops or steps or advances are available, the player may benefit differently according to whether one or the reels is advanced two stops or whether two of the reels are advanced one stop each. Similarly for three, four, five steps and so on right up to the maximum of ten steps, the total available steps may be distributed differently between the three reels, and the logic circuitry (box 8) computes the most advantageous arrangement of steps for the player, for each number of stops from one to ten.

Then the logic circuitry (box 9) instructs the player (by illuminating a sign 10 (Figure 1) to press a "feature stop" button 11. The button 11 is operatively connected to a series of ten panels 12 which are numbered from "one" to "ten" and are each in the shape of an arrow (as are the sign 10 and the panel for button 11) illustrated in Figure 1. Each of the ten panels 12 can be illuminated, and the logic circuitry is designed to make the panels 12 flash on and off one-by-one in sequence quite rapidly when the player is instructed to press the button 11 (box 9). One or another of the panels 12, chosen by the machine at random, stays "on" (that is, illuminated) to indicate the total number of steps available to the player, between one and ten steps inclusive, or even no steps at all if the player is unlucky.

Referring now to Figure 3, once the selected panel 12 (Figure 1) is steadily illuminated, to indicate a particular number of total steps available, the logic circuitry determines (box 13) whether this particular number of total stops is capable of giving the player the highest possible feature award (assuming that the total number of stops are correctly distributed between the three reels). If the answer is "yes" the logic circuitry causes (box 14, Figure 4) the win which has been achieved to be displayed in a sub-panel 15 (Figure 1) of up to four digits and instructs the player to press the "collect" button 3 by illuminating button 3. The logic circuitry determines (box 16) when the "collect" button 3 has been depressed and then *automatically* causes (box 17) each one of the three reels to be stepped through a certain number of steps or stops (such that the total steps or stops for the three reels does not exceed the value indicated by the illuminated panel 12) to set up the award (which in the example being given is the

highest possible feature award as determined by box 13, Figure 3, see above). The logic circuitry (box 18, Figure 4) then terminates the special feature, causing the machine to continue as for a normal game, that is to say, paying out the highest possible feature award (in this particular example, given that box 13 gave the answer "yes" to the question of whether the available number of stops gave the player the highest possible feature award).

If the answer to the question posed by box 13 is "no", that is to say, the number of available stops indicated by the illuminated panel 12 (Figure 1) does *not* give the player the highest possible feature award, the logic circuitry then causes (box 19, Figure 3) to be displayed to the player on sub-panel 15 the value of the award which can be won with this particular number of stops. Additionally, the logic circuitry (box 19) causes to be displayed to the player (on another sub-panel 20, Figure 1) the number of extra stops needed to improve the win and (on sub-panel 15) the value of the improved win. This is achieved by means of a circuitry which causes sub-panel 15 to indicate alternately the value of the award won with this particular number of stops and the value of the improved win which might be won with more stops and to flash on and off the number of extra stops required on sub-panel 20, synchronising the display of the extra stops required with the value of the improved win.

The logic circuitry (box 21) then presents the player with the choice of either pressing the "collect" button 3 or the "feature stop" button 11, by flashing buttons 3 and 11 on and off. The logic circuitry (boxes 22 and 23) contains interlocks to prevent the machine from responding to simultaneous depression of both the collect button 3 and the feature stop button 11. If the logic circuitry (box 22) determines that the collect button 3 has been pressed (and that the feature stop button 11 has not been pressed) it causes (box 17, Figure 4, referred to above) the reels to be advanced up to a total number of stops not exceeding the feature stop value in order to set up the highest possible award combination consistent with the total feature stop value. The logic circuitry (box 18, referred to above) then causes the machine to continue as for a normal game, making the award set up by the circuitry itself (box 17).

If the logic circuitry determines (boxes 22 and 23) that the feature stop button 11 has been pressed (and that the collect button 3 has not been pressed) it causes the feature lights 12 to run to another random position, that is to say, they again light up in sequence until one or other of the panels 12 at random comes to be steadily illuminated (box 24). The new number of stops may be greater or less than the old number of stops, depending on the luck of the player. Obviously, if the old number of stops was a small number, less than five, the player stands a greater chance of having the number increased than decreased. On the other hand, if the original number is high, then the player stands a poor chance of the new number being higher.

Then the logic circuitry proceeds (boxes 17 and 18, Figure 4) to advance the reels in a number of stops

not exceeding the new feature stop value to set up the highest possible award position consistent with the new feature stop value. This is the end of the feature (box 18) and the machine continues as for a normal game, that is to say, paying out the award.

CLAIMS

1. A coin-freed gaming machine comprising
10 means defining a plurality of separate series of symbols, means operative to select any symbol from each series and to display the combination of selected symbols from said plurality of series,
15 means defining certain predetermined combinations of selected symbols as "winning" combination of predetermined respective prize value or values, means for determining whether or not the displayed combination of selected symbols is one of the winning combinations, means for operating the
20 symbol-selecting means to make at least one selection at random, and means for adjusting the symbol-selecting means, after a random selection, so as to change the selected and displayed symbol of at least one said series, said adjusting means being adapted
25 to proceed step-by-step in a predetermined sequence from symbol to symbol in the or each series of which the selected and displayed symbol is being changed, and means for defining the number of steps available in a game to said adjusting means,
30 characterised by means for automatically computing whether the available number of adjustment steps in a game could produce a winning combination and, if so, for automatically causing the selection and

display of said winning combination.

35 2. A gaming machine as claimed in claim 1 characterised by means to select at random the number of steps available in a game to said adjusting means.

3. A gaming machine as claimed in claim 2
40 characterised by internally controlled means to offer a chance of changing the number of steps available in a game to said adjusting means.

4. A gaming machine as claimed in claim 1, 2 or 3 characterised by means defining a maximum number of steps ever available in any game to said
45 adjusting means and means for selecting the number of steps actually available in a game to said adjusting means.

5. A gaming machine as claimed in claim 4
50 characterised by means for computing whether a greater number of steps (up to the maximum ever available) than those actually available could produce a winning combination of greater value than the value of a winning combination actually
55 obtained and means to present a player with the choice of either collecting the value of the winning combination actually obtained or gambling on increasing the number of steps available so as to obtain said winning combination of greater value.

60 6. A gaming machine as claimed in any preceding claim characterised by means for indicating different numbers of available adjustment steps, rapidly changing from number to number, and means to stop the step number indicating means
65 one one of the numbers at random.